

## Whats Your Order? I'll Take a 60-Day Drought

SAN ANTONIO - Tests with a new drought simulator in southern San Antonio will help determine the toughest turfgrass in Texas. The 5,000-square-foot simulator built by the Texas A&M University System's Irrigation Technology Center will help test turfgrass' ability to survive and recuperate from drought.

After the structure was completed in July, a 60-day "drought" on 25 varieties of turfgrass got under way, said Dr. Guy Fipps, Texas Cooperative Extension irrigation specialist.

Research plots are located on either end of the structure, and a galvanized metal roof is positioned in the middle. When rain falls, the roof automatically moves to shield the plots being tested under drought conditions. Thirty minutes after the rain stops, the roof moves back, Fipps said.

Information like this is needed, Fipps said, because much of the state frequently goes without rain for six to eight weeks in the summer. Also, landscapes account for an average of 40 percent of the municipal water usage, he said. Agriculture uses more than 60 percent of all the water used in the state.

"Texas does not have enough water to meet future needs," he said. "Irrigation is the biggest user."

The simulator is one of only two in Texas, he said. The other is used by U.S. Department of Agriculture researchers at the Bushland Agricultural Research Service center to test crop water needs. Only a few drought simulators are in operation in the U.S., Fipps said.

But the San Antonio version has some unique features, he said. The simulator takes only two minutes to cover the plots and is one of the fastest in the nation. And Irrigation Technology Center personnel are working to cut that time to 30 seconds.

The simulator also has a low profile 4 feet off of the ground to give it stability in wind storms, he said.

Besides, Fipps said, "I think it's the coolest-looking," The others (in the U.S.) are basically a metal building on rails. This is one of the largest and fastest."

Wayne LaPor, professor emeritus in the department of agricultural and biological engineering at Texas A&M University, designed the drive and pulley system of the simulator. Dr. Chris Braden, Irrigation Technology Center associate, was in charge of construction.

The trials are under the direction of Fipps and Dr. David Chalmers, Texas Cooperative Extension turfgrass specialist.



A drought simulator built by the Texas A&M University System's Irrigation Technology Center in San Antonio will test turfgrass' ability to survive and recuperate from drought. This photograph taken last summer shows turfgrass plots that have been subjected to 26 days of drought. (Photo courtesy of the Irrigation Technology Center)

Common warm-season grasses such as Bermuda, zoysia and St. Augustine are being tested in 200 plots, each 4 feet by 4 feet, and being compared to buffalo grass.

When the simulated drought was completed, the grasses went into a recovery phase. In that phase, the plots received rainfall and were irrigated according to TexasET data. The TexasET (evapotranspiration) network and Web site (<http://TexasET.tamu.edu>) helps users determine the irrigation needs of landscapes and crops. A second set of plots were planted in October and will be put under drought conditions next summer.

The results from the first year of the two-year drought study will be available in a couple of months, Fipps said.

Funding to construct the simulator was provided by the San Antonio Water System and the Rio Grande Basin Initiative. The turfgrass study is sponsored by the San Antonio Water System and the Turfgrass Producers Association.

The simulator "is the first of which we hope the Irrigation Technology Center will have to address irrigation water needs in Texas," Fipps said.